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Hidden valleys in CMS muon endcap detector

Thursday 23 January 2025 14:00 (15 minutes)

We demonstrate the sensitivity of the CMS search at the high luminosity LHC run for long-lived particles for Hidden Valley scenarios. We use a theoretically consistent parametrisation of the Hidden Valley parameters to establish our simulation setup. We also adopt a hybrid strategy and establish upper limits on the Hidden Valley production cross section as a function of the model parameters for a model independent interpretation of the search results. Our results demonstrate that the CMS search for long-lived particle decays in the CMS muon endcap is highly sensitive to the underlying theory parameter and it has a capacity to constrain overall scale as well as the ratio of the pion mass to this scale. Furthermore we demonstrate that the search is comparatively less sensitive to the Hidden Valley number of colors or the flavours.

Are you happy to have the meeting recorded?

Yes

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